In the Claims

1. (twice amended) A method for the biological production of polyhydroxyalkanoate containing 3-hydroxyhexanoate comprising growing a transgenic organism selected from the group consisting of a transgenic bacterium and a transgenic plant having at least one bacterial transgene encoding an enzyme selected from the group consisting of a PHA polymerase incorporating C_6 substrates and a D-specific enoyl-CoA hydratase, integrated into the chromosome, [under conditions suitable for] wherein production of polyhydroxybutyrate-polyhydroxyvalerate containing 3-hydroxyhexanoate by the transgenic organism occurs.

6. (amended) The method of claim 1 ~~wherein~~ the [organism is genetically engineered to express or overexpress] transgene encodes a PHA polymerase incorporating C_6 substrates.

8. (twice amended) The method of claim 1 ~~wherein~~ the organism [is genetically engineered to redirect] ~~directs~~ metabolites to production of 3-hydroxyhexanoyl-CoA.

9. (amended) The method of claim 8 ~~wherein~~ the [organism is genetically engineered using] transgene encodes a D-specific enoyl-CoA hydratase gene.

11. (twice amended) The method of claim 8 wherein the organism [is genetically engineered using] has the genes encoding the enzymes in a butyrate fermentation pathway.

13. (twice amended) The method of claim 11 wherein the organism [is genetically engineered to convert] converts butyrate to butyryl CoA or butyryl CoA to crotonyl CoA.

14. (twice amended) The method of claim 11 wherein the organism [is genetically engineered to express] expresses a broad range reductase that is active on C_6 substrates.

15. (twice amended) The method of claim 11 ~~wherein the organism [is genetically engineered to express]~~ expresses a polymerase that accepts 3-hydroxyhexanoyl CoA.

16. (twice amended) The method of claim 11 wherein the organism [is genetically engineered to express] expresses a thiolase accepting acetoacetyl CoA.

17. (twice amended) The method of claim 11 wherein the organism [is genetically engineered to express] expresses an enzyme selected from the group consisting of thiolases specific for 3-ketohexanoyl CoA, reductase active on 3-ketohexanoyl CoA, and 3-hydroxyhexanoyl CoA.

18. (twice amended) The method of claim 8 wherein the organism [is further genetically engineered to express] expresses one or more fatty acid biosynthetic enzymes.

23. (twice amended) The method of claim 8 wherein the organism [is further genetically engineered to express] expresses one or more enzymes forming a fatty acid oxidation complex.

24. (amended) The method of claim 23 wherein the [fatty acid oxidation complex comprises enzymes] one or more enzymes are selected from the group consisting of enzymes epimerizing S-3 hydroxyhexanoyl CoA and enzymes reducing 3-ketohexanoyl CoA.

26. (twice amended) The method of claim 24 wherein the [epimerizing] enzymes epimerizing S-3 hydroxyhexanoyl CoA are from the *Pseudomonas putida* FaoAB complex.

27. (amended) The method of claim 23 wherein the organism [that is genetically engineered] accumulates 3-ketohexanoyl CoA due to a lack of a thiolase.

31. (twice amended) A transgenic bacterium or plant for use in any of the methods of claims [1-30] 1-27.